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|------|--|-------|--|
| 1    | <b>BINAURAL AND STEREOPHONIC</b>                       | 59    | .Loudspeaker operation   |
| 2    | .Broadcast or multiplex stereo                         | 60    | .Testing of hearing aids   |
| 3    | ..FM final modulation                                  | 61    | <b>SOUND EFFECTS</b>   |
| 4    | ...AM subcarrier                                       | 62    | .Tremelo or vibrato effects                                      |
| 5    | ....Four discrete channels                             | 63    | .Reverberators   |
| 6    | .....Having transmitter                                | 64    | ..Mechanical (e.g., reverberation chamber)                       |
| 7    | ....Switch-type detector or modulator                  | 65    | ...Helical spring  |
| 8    | .....Two diodes  | 66    | <b>DEREVERBERATORS</b>   |
| 9    | .....Four or more diodes                               | 67    | <b>STETHOSCOPES, ELECTRICAL</b>                                  |
| 10   | ....Channel separation control                         | 312   | <b>HEARING AIDS, ELECTRICAL</b>                                  |
| 11   | ....Automatic switchover between mono and stereo modes | 313   | .Directional   |
| 12   | ....Stereo indicators (e.g., stereo presence)          | 314   | .Programming interface circuitry                                 |
| 13   | ....Antinoise  | 315   | .Remote control, wireless, or alarm                              |
| 14   | ....Having transmitter                                 | 316   | .Frequency transposition   |
| 15   | ..AM or both AM and angle final modulation             | 317   | .Noise compensation circuit                                      |
| 16   | ...Having transmitter                                  | 318   | ..Feedback suppression   |
| 17   | .Pseudo stereophonic                                   | 319   | .With vacuum tube amplifier                                      |
| 18   | .Pseudo quadrasonic                                    | 320   | .Spectral control  |
| 19   | .Quadrasonic   | 321   | .Wideband gain control   |
| 20   | ..Matrix   | 322   | .Specified casing or housing                                     |
| 21   | ...4-2-4   | 323   | ..Power supply or programming interface terminals                |
| 22   | ....Variable decoder                                   | 324   | ..Component mounting   |
| 23   | ....With encoder                                       | 325   | ..Cerumen protection   |
| 23.1 | .Hearing aid   | 326   | ..Non-air-conducted sound delivery                               |
| 300  | .Stereo speaker arrangement                            | 327   | ..Spectacle  |
| 301  | ..In furniture or clothing                             | 328   | ..Ear insert   |
| 302  | ..In vehicle   | 329   | ...Device for manipulation                                       |
| 303  | ..Optimization   | 330   | ..Hook over ear  |
| 304  | ...Enclosure orientation                               | 331   | ..Inductive pickup   |
| 305  | ...Enclosure adaptation                                | 70    | <b>ARTIFICIAL LARYNX, ELECTRICAL</b>                             |
| 306  | ..With image presentation means                        | 71.1  | <b>ACOUSTICAL NOISE OR SOUND CANCELLATION</b>                    |
| 307  | ..Surround (i.e., front plus rear or side)             | 71.2  | .Acoustic, nonairborne vibration sensing or counterwave emission |
| 308  | ..In single baffle                                     | 71.3  | .From appliance  |
| 309  | ..Stereo earphone                                      | 71.4  | .Within cabin or compartment of vehicle                          |
| 310  | ...Virtual positioning                                 | 71.5  | .Within duct   |
| 311  | ...Wireless or for use in diverse                      | 71.6  | .Adjacent ear  |
| 26   | .Stereo sound pickup device (microphone)               | 71.7  | .Particular transducer or enclosure structure                    |
| 27   | .Center channel  | 71.8  | .Counterwave generation control path                             |
| 28   | .Amplifier   | 71.9  | ..Nonacoustically derived reference signal                       |
| 54   | <b>HELIUM SPEECH</b>                                   | 71.11 | ..Adaptive filter topology                                       |
| 55   | <b>AUDIO TRANSDUCER PROTECTION CIRCUITRY</b>           | 71.12 | ..Algorithm or formula (e.g., LMS, Filtered-X, etc.)             |
| 56   | <b>MONITORING OF SOUND</b>                             |       |  |
| 57   | .Amplification control responsive to ambient sound     |       |  |
| 58   | <b>MONITORING/MEASURING OF AUDIO DEVICES</b>           |       |  |

|       |   |     |   |
|-------|---|-----|---|
| 71.13 | ..Analog or nonadaptive                                 | 100 | ..With active device  |
| 71.14 | ..Tonal noise or particular frequency or band           | 101 | .Automatic tone control   |
| 72    | <b>HEARING PROTECTORS, ELECTRICAL</b>                   | 102 | ..With amplitude control  |
| 73.1  | <b>SOUND OR NOISE MASKING</b>                           | 103 | .Having automatic equalizer circuit   |
| 74    | <b>HEADPHONE CIRCUITS</b>                               | 104 | <b>INCLUDING AMPLITUDE OR VOLUME CONTROL</b>                                    |
| 75    | <b>MEGAPHONES</b>                                       | 105 | .Remote   |
| 76    | <b>LECTERNS</b>   | 106 | .With amplitude compression/expansion   |
| 77    | <b>ONE-WAY AUDIO SIGNAL PROGRAM DISTRIBUTION</b>        | 107 | .Automatic  |
| 78    | .Drive-in   | 108 | ..Including feedback  |
| 79    | .Near field   | 109 | .With manual volume control   |
| 80    | .Multiple channel                                       | 110 | <b>VOICE CONTROLLED</b>   |
| 81    | ..With switching  | 111 | <b>CIRCUITRY COMBINED WITH SPECIFIC TYPE MICROPHONE OR LOUDSPEAKER</b>          |
| 82    | .Public address system                                  | 112 | .With carbon microphone   |
| 83    | ..Feedback suppression                                  | 113 | .With electrostatic microphone  |
| 84    | ..Spare amplifier substitution                          | 114 | .With piezoelectric microphone  |
| 85    | ..Speaker or channel switching                          | 115 | .With magnetic microphone   |
| 86    | <b>VEHICLE</b>  | 116 | .With electrostatic loudspeaker   |
| 87    | <b>HAVING NON-ELECTRICAL FEATURE (E.G., MOUNTING)</b>   | 117 | .With magnetic loudspeaker  |
| 89    | ..Loudspeakers driven in given phase relationship       | 118 | <b>WITH MUSICAL INSTRUMENT</b>  |
| 332   | .And loudspeaker  | 119 | <b>WITH MIXER</b>   |
| 333   | ..With furniture, clothing, or image presentation means | 120 | <b>WITH AMPLIFIER</b>   |
| 334   | ..Portable or for use in diverse environment            | 121 | .Feedback   |
| 335   | ..Plural diaphragms, compartments, or housings          | 122 | <b>HAVING MICROPHONE SWITCHING</b>  |
| 336   | ..Curved or angled housing                              | 123 | <b>ELECTRO-ACOUSTIC AUDIO TRANSDUCER</b>  |
| 91    | .Having microphone                                      | 150 | .Body contact wave transfer (e.g., bone conduction earphone, larynx microphone) |
| 92    | <b>DIRECTIVE CIRCUITS FOR MICROPHONES</b>               | 151 | .Driven diverse static structure (e.g., wall, sounding board)                   |
| 93    | <b>FEEDBACK SUPPRESSION</b>                             | 337 | .Having acoustic wave modifying structure                                       |
| 94.1  | <b>NOISE OR DISTORTION SUPPRESSION</b>                  | 338 | ..With tubular waveguide or resonant element                                    |
| 94.2  | .Spectral adjustment                                    | 339 | ..Sound intensifying or spreading element                                       |
| 94.3  | ..In multiple frequency bands                           | 340 | ...Horn   |
| 94.4  | .Interpolation  | 341 | ....Inverted, folded, or curled   |
| 94.5  | .Soft switching, muting, or noise gating                | 342 | ....Plural horns or diaphragms  |
| 94.6  | .Hum or ground loop                                     | 343 | ....Phase plug  |
| 94.7  | .Using signal channel and noise channel                 | 344 | ...Mouthpiece   |
| 94.8  | .Peak limiting or pulsive noise compensation            | 345 | ..Acoustic enclosure  |
| 94.9  | .Feedforward circuitry for transducer compensation      | 346 | ...Acoustic resistance  |
| 95    | <b>MICROPHONE FEEDBACK</b>                              | 347 | ....On front side of diaphragm  |
| 96    | <b>LOUDSPEAKER FEEDBACK</b>                             | 348 | ....On rear side of diaphragm   |
| 97    | <b>INCLUDING PHASE CONTROL</b>                          | 349 | ...Bass reflex (e.g., rear wave)  |
| 98    | <b>INCLUDING FREQUENCY CONTROL</b>                      | 350 | ...Front wave   |
| 99    | .Having crossover filter                                | 351 | ...Plural chambers  |

|     |   |     |  |
|-----|---|-----|--|
| 352 | ...Having internal wave reflecting means  | 372 | ....Having mechanical or acoustic sound attenuation              |
| 353 | ...Acoustic damping or attenuating resonator  | 373 | ....Openable to ambient  |
| 354 | ..Absorbing or attenuating element  | 374 | ...Particular support structure                                  |
| 160 | ..Reflecting element  | 375 | ....And microphone   |
| 161 | ..With mechanical amplifier arrangement   | 376 | ....Headgear   |
| 162 | ..Detail of mechanical vibration coupling to transducer (e.g., tuned vibrating element) | 377 | ....Plural bands   |
| 163 | ..Having bi-directional transducer  | 378 | ....Single band  |
| 164 | ..Thermal response to, or generation of, sound vibration                                | 379 | ....adjustable   |
| 165 | ..By modifying fluid flow   | 380 | ....Ear insert or bone conduction                                |
| 166 | ..Having a fluid as a conducting element  | 381 | ....Hook over ear or spectacle                                   |
| 167 | ..Ionized gap, spark, or flame  | 382 | ....Sound conducting tube  |
| 355 | ..Housed microphone   | 383 | ....Collapsible  |
| 356 | ..Directional   | 384 | ...Electrical hardware feature                                   |
| 357 | ...With plural sound ports (e.g., pressure gradient)                                    | 184 | ..Different types of diaphragms                                  |
| 358 | ....Plural or variable characteristics  | 185 | ..Having common voice coil                                       |
| 359 | ..Windscreen  | 186 | ..Plural diaphragms  |
| 360 | ..Cavity  | 385 | ..Having body supported structure other than on head             |
| 361 | ..Mounting or support   | 386 | ..Mounting or support feature of housed loudspeaker              |
| 362 | ...Boom (other than on headset)   | 387 | ..Directional, directible, or movable                            |
| 363 | ...Stand or gooseneck   | 388 | ..With furniture, clothing, or image display                     |
| 364 | ...On body or clothing  | 389 | ..In vehicle   |
| 365 | ...In electronic apparatus or vehicle   | 390 | ..Boom or support arm  |
| 366 | ...Detachable from support  | 391 | ..Grille   |
| 367 | ...In headgear  | 392 | ..Resilient  |
| 368 | ...On shock absorbing support   | 393 | ..electrical insulation feature                                  |
| 369 | ..Microphone capsule only   | 394 | ..Electrical hardware  |
| 170 | ..Compound  | 395 | ..Mechanical detail  |
| 171 | ..Micromagnetic   | 189 | ..Having protective or sheilding feature                         |
| 172 | ..Light modifying   | 190 | ..Electrostrictive, magnetostrictive, or piezoelectric           |
| 173 | ..Piezoelectric or ferroelectric  | 191 | ..Having electrostatic element (e.g., electret, vibrating plate) |
| 174 | ..Capacitive  | 396 | ..Electromagnetic (e.g., dyynamic)                               |
| 175 | ..Semiconductor junction microphone   | 397 | ..Cooling feature  |
| 176 | ..Conductive diaphragm (e.g., reed, ribbon)   | 398 | ..Having diaphragm support feature                               |
| 177 | ..Dynamic (e.g., magnetic)  | 399 | ..Conductive diaphragm (e.g., ribbon)                            |
| 178 | ..Vibrating electrical contract   | 400 | ..Movable voice coil   |
| 179 | ..Resistive   | 401 | ...Multiple voice coils  |
| 180 | ...Granular or carbon   | 402 | ....For different frequencies                                    |
| 181 | ....Differential  | 403 | ...Centering from outside bobbin or diaphragm                    |
| 182 | ..Plural or compound reproducers  | 404 | ....Spider   |
| 370 | ..Headphone   | 405 | ...Centering from within bobbin or diaphragm                     |
| 371 | ...Particular cup   |     |  |

406 ...Field coil  
 407 ...Particular bobbin structure  
 408 ...Pattern  
 409 ...Wiring structure  
 410 ...Coil coating, winding layer structure, or wire  
 411 ...Including adjustment mechanism  
 412 ...Magnetic circuit  
 413 ...Having damping  
 414 ...Flux modifying means  
 415 ...Magnetic liquid  
 416 ...Inverted (e.g., within cone)  
 417 ...Armature diaphragm  
 418 ...Armature linked to diaphragm  
 419 ...Not having central magnetic portion  
 420 ...Having central magnetic portion  
 421 ....Plural magnets  
 422 .....Like poles adjacent  
 423 ...Specified diaphragm shape or structure  
 424 ...Plural portions or sections  
 425 ....Honeycomb  
 426 ...Critically defined material or lamination  
 427 ....Metal  
 428 ....Fibrous  
 429 ...Apertures in surface  
 430 ...Dome or round  
 431 ...Flat  
 432 ...Conical  
 433 ...Basket detail  
 124 **MISCELLANEOUS**

#### **FOREIGN ART COLLECTIONS**

##### **FOR 000 CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collection listed below. These collections contain ONLY foreign patents or nonpatent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 100 **AUDIO BANDWIDTH COMPRESSION OR EXPANSION (381/29)**  
 FOR 101 .With content reduction encoding (381/30)  
 FOR 102 .Delay line (381/33)  
 FOR 103 **TIME COMPRESSION OR EXPANSION (E.G., RUN LENGTH CODING) (381/34)**  
 FOR 104 .With content reduction encoding (381/35)  
 FOR 105 **SPEECH ANALYSIS AND SYNTHESIS COMBINED (381/36)**  
 FOR 106 .Using frequency (381/37)  
 FOR 107 ..Pitch (381/38)  
 FOR 108 ..Formants (381/39)  
 FOR 109 .Using time (381/40)  
 FOR 110 **SPEECH ANALYSIS (E.G., PHONEME RECOGNITION) (381/41)**  
 FOR 111 .Voice recognition (381/42)  
 FOR 112 .Word recognition (381/43)  
 FOR 113 ..Phonetic typewriters (381/44)  
 FOR 114 ..Frequency domain (381/45)  
 FOR 115 .Detection of speech in noise (381/46)  
 FOR 116 .Signal to noise ratio enhancement (381/47)  
 FOR 117 .Speech parameter display (381/48)  
 FOR 118 .Speech pitch fundamental frequency (381/49)  
 FOR 119 .Speech formant frequencies (381/50)  
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    spatial orientation, etc.)  
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    (381/154)  
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    element (381/156)  
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    structure (381/199)  
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